

Docket No. 50439-2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

RECEIVED
CENTRAL FAX CENTER

FEB 13 2004

OFFICIAL

APPLICANT: Barstad et al.

SERIAL NO. 09/605,442

GROUP: 1741

FILED: June 28, 2000

EXAMINER: W. Nicholas

FOR: ELECTROLYTIC COPPER PLATING SOLUTIONS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION UNDER 37 CFR 1.131

The undersigned declare as follows:

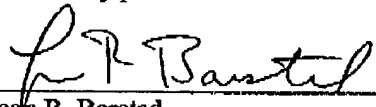
1. We are co-inventors of the above-identified patent application ("the patent application") assigned to the Shipley Company.
2. Prior to January 11, 1999, we conceived of, made and used electrolytic copper plating compositions that contained at least one copper salt, an electrolyte, and one or more brightener compounds in amounts greater than 1.5 mg per liter of the plating composition. Brightener compounds used in those electrolytic copper plating compositions prior to January 11, 1999 included compounds that had a molecular weight of less than 1000 and compounds having sulfide and sulfonic acid groups. Prior to January 11, 1999, using such electrolytic copper plating compositions, we electrolytically deposited copper onto semiconductor wafers that contained microvias and trenches.
3. Attached as Exhibits 1 and 2 are true and accurate copies of laboratory notebook records (notebook pages 22 and 23 respectively), with dates deleted, of such actual work discussed in paragraph 2 above and completed prior to January 11, 1999. For instance, those Exhibits 1 and 2 disclose use of a copper electroplating composition identified as Nanoplate

Barstad et al.
U.S.S.N. 09/605,442
Page 2

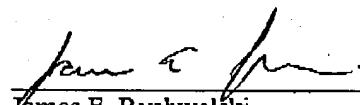
2001, which is the same copper electroplating composition as disclosed in Example 2 on page 16 of the patent application. That Nanoplate 2001 electroplating composition contained a copper salt, an acidic electrolyte, a brightener of bis-sodium-sulfonopropyl-disulfide in an amount of 2.4 mg/liter, and a suppressor of propylene glycol copolymer. At Exhibit 2, copper electroplating of 1000 semiconductor wafers with the Nanoplate 2001 composition is reported. The designation of "Q" indicates test semiconductor wafers that contain trenches and the designation of "M" indicates test semiconductor wafers that contain microvias.

4. We hereby further declare that all statements made herein of our own knowledge are true and all statements made on information and belief are believed to be true, and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, and that such willful false statements may jeopardize the validity of the above-identified application or any patent issued thereon.


Date: 1-16-04


Leon R. Barstad

Date: 1-16-04


James E. Rychwal'ski

Date: 1-16-04


Mark Lefebvre

Date: _____

Stephane Minard

Barstad et al.
U.S.S.N. 09/605,442
Page 3

Date: _____

James L. Martin

Date: _____

Robert A. Schetty

Date: _____

Michael P. Toben

Exhibit 1

Project:

Nimphal 2001 Bath Life Test

Notebook Number: 3111

Date	Time	TBA	MANUAL B-2 ADD	AUTO B-2 ADD	Comments
	6:40 AM	4.35	50		ADD 800 ml D.I.
		14.95			
	11:25	11:00	7		shot off pump Turned on Feed pump H.H.
	12:30	12.25			(25)
Link Down	2:00				(20)
	3:00				ADD 900 ml D.I.
Link Down				44	(910)

Time	TBA	MANUAL B-2 ADD	AUTO B-2 ADD	Comments
8:45				ADD 850 ml D.I.
8:50	3.0	60		
9:10	12.9			

Time	TBA	MANUAL B-2 ADD	AUTO B-2 ADD	Comments
6:05				ADD 900 ml D.I.
6:20	6.27	40		
6:45	13.90			
8:45	11:04	7		Auto due turned on
8:50	12:45			Prepared 1000 ft. water Removed 600 ml bath

Signature

Date

22

Read and Understood By:

Signature

Date

Applied 570 ml water
3.0 ml D.I.

Exhibit 2

Project:

Xanthoxen back Libotest

Notebook Number:

31101000 water pressure water test

Q 8111704-10

Processed at 5:45 AM

Q 8111704-11

"

Q 8111704-12

"

Q 8111704-13

"

Q 8111704-14

"

Q 8111704-15

"

B 8112319-16

"

B 8112319-15

"

B 8112319-14

"

B 8112319-13

"

~~xxx~~ M 47133-23-F3

Date

Time

TBA

Manual
B-2 addAuto
B-2 add

Comments

(25)

9:40 12.7 20

10:45 13.96

11:40 13.26

2:00 11.00

4:00 5/hrs. Down

Pump off

(25)

(25)

(25)

ADD 1800 MS
D.I.
For
waterhead
Pump

(6020)

Road and Understood By:

Signature

[Signature]

Signature

Date

Date

FEB 13 2004
OFFICE

Docket No. 50439-2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: Barstad et al.
SERIAL NO. 09/605,442 GROUP: 1741
FILED: June 28, 2000 EXAMINER: W. Nicholas
FOR: ELECTROLYTIC COPPER PLATING SOLUTIONS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION UNDER 37 CFR 1.131

The undersigned declare as follows:

1. We are co-inventors of the above-identified patent application ("the patent application") assigned to the Shipley Company.
2. Prior to January 11, 1999, we conceived of, made and used electrolytic copper plating compositions that contained at least one copper salt, an electrolyte, and one or more brightener compounds in amounts greater than 1.5 mg per liter of the plating composition. Brightener compounds used in those electrolytic copper plating compositions prior to January 11, 1999 included compounds that had a molecular weight of less than 1000 and compounds having sulfide and sulfonic acid groups. Prior to January 11, 1999, using such electrolytic copper plating compositions, we electrolytically deposited copper onto semiconductor wafers that contained microvias and trenches.
3. Attached as Exhibits 1 and 2 are true and accurate copies of laboratory notebook records (notebook pages 22 and 23 respectively), with dates deleted, of such actual work discussed in paragraph 2 above and completed prior to January 11, 1999. For instance, those Exhibits 1 and 2 disclose use of a copper electroplating composition identified as Nanoplate

Barstad et al.
U.S.S.N. 09/605,442
Page 2

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4. We hereby further declare that all statements made herein of our own knowledge are true and all statements made on information and belief are believed to be true, and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, and that such willful false statements may jeopardize the validity of the above-identified application or any patent issued thereon.

Date: _____

Leon R. Barstad

Date: _____

James E. Rychwalski

Date: _____

Mark Lefebvre

Date: _____

Stephane Minard

Barstad et al.
U.S.S.N. 09/605,442
Page 3

Date: Jan. 20, 2004


James L. Martin

Date: _____

Robert A. Schetty

Date: _____

Michael P. Toben

Exhibit 1

Project: Wampler 2001 Bath Life Test

Notebook Number: 3111

DATE	Time	TBA	MANUAL A-2 ADD	AUTO A-2 ADD	Comments
	6:50 AM	4.35	50		ADD 800 ml D.I.
		14.85			
	11:25	11:00	7		Shot off pump Toward on final pump Hill
	12:30	12.25			(25)
Life Down	2:00				(20)
	3:00				ADD 800 ml D.I.
Life Down				44	(9/10)

Time	TBA	MANUAL A-2 ADD	AUTO A-2 ADD	Comments
8:45				ADD 850 ml D.I.
8:50	3.0	60		
9:10	12.9			(80)
				(920)

Time	TBA	MANUAL A-2 ADD	AUTO A-2 ADD	Comments
6:05				ADD 900 ml D.I.
6:20	6.27	40		
6:45	13.50			
8:45	11:04	7		Auto does toward on
8:50	12:45			Processed 1000 feet water Examined 600 ml bath

Signature: [Signature]

Signature

Date

22

Read and Understood By:

Signature: [Signature]

Signature

Date

Added 570 ml water
from 3.0 ml D.I.

Exhibit 2

Project: Xenoph/2000 land Lib-test

Notebook Number: 3110

1000 water pressure water lift

Q	8111704-10	Process at 6:45 AM
Q	8111704-11	"
Q	8111704-12	"
Q	8111704-13	"
Q	8111704-14	"
Q	8111704-15	"
B	8112319-16	"
B	8112319-15	"
B	8112319-14	"
B	8112319-13	"
M	47133-23-F3	"

Date	Time	TBA	Manual B-2 only	Auto B-2 only	Comments
					(25)
	9:40	12.7	20		
	10:45	17.96			
	11:40	17.26			Pump off
	2:00	11.00			(25)
					(25)
	4:00	S/Art Down			(25) Add 180000 P.I. For unusual flow
					(1020)

Signature

Date

Read and Understood By:

Signature

Date

Docket No. 50439-2

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FEB 13 2004

APPLICANT: Barstad et al.

SERIAL NO. 09/605,442

GROUP: 1741

FILED: June 28, 2000

EXAMINER: W. Nicholas

FOR: ELECTROLYTIC COPPER PLATING SOLUTIONS

OFFICIAL

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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Barstad et al.
U.S.S.N. 09/605,442
Page 2

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Date: _____

Leon R. Barstad

Date: _____

James E. Rychwalski

Date: _____

Mark Lefebvre

Date: _____

Stephane Minard

FEB-13-2004 FRI 02:24 PM EDWARDS & ANGELL
JUAN. 16. 2004F 3:05PM5 AM SHIPLEY RONALNGELL, LLP

FAX NO. 617 439 4170
FAX NO. 508 485 03 NO. 400

P. 20
P. 4P. 04

Barstad et al.
U.S.S.N. 09/605,442
Page 3

Date: _____

James L. Martin

Date: _____

Robert A. Schetty

Date: 1/16/04


Michael P. Toben

Exhibit 1

Project: Amphibian 2000 Bell Life Test

Notebook Number: 3.111

Date	Time	TBA	MANUAL A-2 ADD	AUTO A-2	Comments
	6:10 AM	4.36	50		ADD 800 mL D.I.
		14.85			
	11:25	11:00	7		shot off pump Turned on Feed pump H2O
	12:30	12:25			(25)
Live Down	2:00				(20)
	3:00			44	ADD 900 mL D.I.
Live Down					(970)

Time	TBA	MANUAL A-2 ADD	AUTO A-2 ADD	Comments
8:45				ADD 850 mL D.I.
8:50	3.0	60		
9:10	12.9			(80)
				(920)

Time	TBA	MANUAL A-2 ADD	AUTO A-2 ADD	Comments
6:05				ADD 900 mL D.I.
6:20	6.27	40		
6:45	13.93			
8:45	11:04	7		Added 1000 left water Removal 600 mL bath
8:50	12:45			Added 570 mL sterile 300 mL D.I.

Signature: [Signature]

Read and Understood By: [Signature]
Signature

Date:
22

Date

Exhibit 2

Project: Shingle / Sea back Lift test

Notebook Number: 3110

1000 water pressure water test

Q	8111704-10	Pressure at 5:15 AM
Q	8111704-11	"
Q	8111704-12	"
Q	8111704-13	"
Q	8111704-14	"
Q	8111704-15	"
B	8112319-16	"
B	8112319-15	"
B	8112319-14	"
B	8112319-13	"
X M	47133-23-F3	"

Date	Time	TBA	Moist B-2 add	Temp B-2 add	Comments
					(25)
	9:40	12.7	20		
	10:45	13.96			
	11:40	13.26			Temp off
	2:00	11.00			(25)
					(25)
	4:00	5/105.1 Down			(25) ADD 180000 D.I. Foot water level
					(5020)

Signature [Signature]

Date

Read and Understood By

Signature [Signature]

Date

JAN-16-2004 THU 07:57 PM

EDWARDS & ANGELL, LLP

FAX NO. 508 485 0383

P. 02

Docket No. 50439-2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: Barstad et al.

SERIAL NO. 09/605,442

GROUP: 1741

FILED: June 28, 2000

EXAMINER: W. Nicholas

FOR: ELECTROLYTIC COPPER PLATING SOLUTIONS

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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JAN-15-2004 THU 07:57 PM

EDWARDS & ANGELL, LLP

FAX NO. 508 485 0383

P. 03

Barrat et al.
U.S.S.N. 09/605,442
Page 2

2001, which is the same copper electroplating composition as disclosed in Example 2 on page 16 of the patent application. That Nanoplate 2001 electroplating composition contained a copper salt, an acidic electrolyte, a brightener of bis-sodium-sulfonopropyl-disulfide in an amount of 2.4 mg/liter, and a suppressor of propylene glycol copolymer. At Exhibit 2, copper electroplating of 1000 semiconductor wafers with the Nanoplate 2001 composition is reported. The designation of "Q" indicates test semiconductor wafers that contain trenches and the designation of "M" indicates test semiconductor wafers that contain microvias.

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Date: _____

Leon R. Barrat

Date: _____

James H. Rychwalski

Date: _____

Mark Lefebvre

Date: 01/16/2004

Stephanie A. Barrat

JAN-15-2004 THU 07:58 PM

EDWARDS & ANGELL, LLP

FAX NO. 508 485 0383

P. 04

Barnes et al.
U.S.B.N. 09/605,442
Page 3

Date: _____

James L. Martin

Date: _____

Robert A. Schetty

Date: _____

Michael P. Toben

JAN-15-2004 THU 07:58 PM

EDWARDS & ANGELL, LLP

FAX NO. 508 485 0383

P. 05

Exhibit 1c 1

Project:

Nov 12, 2010 Beth Liff Tied

Notebook Number: 211

DATE	TIME	TBA	MANUAL 4-2-2000	AUTO A-1 A-10	COMMENTS
	11:45 AM	4:35	50		A-10 500 WLS D.F.
		14:05			Shot with pump Turned on Fuel pump 14:15
	11:25	11:00	7		(25)
	12:10	12:25			(20)
Leak Down	2:00				A-10 500 WLS D.F.
	3:00			44	
Leak Down					(976)

Time	T/A	Midnight A-Z AND	A-Z A-Z AND	Comments
845				PROP 850 and A-Z
850	3.0	60		
9:10	12.9			
				(10)
				(920)
				Comments

[illegible]

Abstract

82

Discussion

CLAY

Docket No. 50439-2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: Barstad et al.

SERIAL NO.: 09/605,442

FILED: June 28, 2000

FOR: ELECTROLYTIC COPPER PLATING SOLUTIONS

EXAMINER: W. Nicholas

GROUP: 1742

RECEIVED
CENTRAL FAX CENTER

FEB 13 2004

CRITICAL

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION

I, Peter Corless, declare as follows:

1. I am an attorney of record of the above-identified application ("the application"), which has been assigned by all the inventors to the Shipley Company, L.L.C. A copy of the executed Assignment for the application is attached.

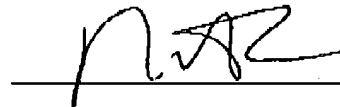
2. Named inventor Robert Schetty is no longer employed by the Shipley Company. I sent by Federal Express to the last known residence address of Robert Schetty a Declaration under 37 CFR 1.131 for the application for Robert Schetty's review and signature. That overnight mail included an envelope with postage pre-paid for the signed Declaration to be returned to me by overnight service. That correspondence to Robert Schetty was returned to me by Federal Express as being undeliverable.

3. Previously, in patent application number 09/957,218 also assigned to Shipley Company and having Robert Schetty as a named inventor, Robert Schetty refused to sign a Declaration under 37 CFR 1.63. An attorney of record in that case filed a petition (which was granted) to accept the Declaration under 37 CFR 1.63 without Robert Schetty's signature.

Barstad et al.
U.S.S.N. 09/605,442
Page 2

4. I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements are made with the knowledge that willful and false statements and the like so made are punishable by fine or imprisonment, and that such willful false statements may jeopardize the validity of the above-identified application or any patent issued thereon.

Date: February 13, 2004



Peter F. Corless

Attorney Docket No. 50439-2

Page 1 of 2

ASSIGNMENT

WHEREAS, I, Leon R. Barstad of Raynham, Massachusetts, I, James E. Rychwalski of Medway, Massachusetts, I, Mark Lefebvre of Hudson, New Hampshire, I, Stephane Menard of , I, James L. Martin of Merrick, New York, I, Robert A. Schetty, III of Fort Salonga, New York and I, Michael P. Toben of Smithtown, New York, (hereinafter referred to as "Assignors"), have invented certain new and useful improvements in "ELECTROLYTIC COPPER PLATING SOLUTIONS", for which an application for United States Letters Patent was filed on June 28, 2000 and assigned U.S. Serial No. 09/605,442 which application claims priority of U.S. Serial No. 09/313,045, , filed May 17, 1999, and

WHEREAS, Shipley Company, L.L.C., located at 455 Forest Street, Marlborough, Massachusetts 01752, (hereinafter referred to as the "Assignee"), is desirous of acquiring the entire right, title and interest in and to the same invention, and in and to the said application, and any Letters Patent that may issue thereon;

NOW, THEREFORE, TO ALL WHOM IT MAY CONCERN, be it known that for the above consideration, the Assignors have assigned and transferred, and do hereby assign and transfer to the Assignee, its successors and assigns, their entire right, title and interest for the United States in and to the said invention and in and to the said application and all patents which may be granted therefor, and all divisions, reissues, substitutions, continuations, in whole or in part, re-examinations, and extensions thereof, and all applications claiming priority therefrom; and the Assignors hereby authorize and request the Commissioner of Patents and Trademarks to issue all patents for said invention, or patents resulting therefrom, insofar as their interest is concerned, to the Assignee; to have and to hold for the sole and exclusive use and benefit of the Assignee, its successors and assigns, to the full end of the term or terms for which any and all of said Letters Patent for said invention may issue, to the same extent as the Assignors would hold and enjoy if this Assignment had not been made.

The Assignors also have assigned and transferred, and do hereby assign and transfer to the Assignee, its successors and assigns, their entire right, title and interest in and to the invention disclosed in said application, in all countries of the world foreign to the United States, including the right to file applications and obtain patents for said invention in its own name in said countries and including all rights of priority in said countries under the terms of any applicable international convention; to have and to hold for the sole and exclusive use and benefit of the Assignee, its successors and assigns, to the full end of the term or terms for which any and all of said Letters Patent for said invention may issue, to the same extent as the Assignors would hold and enjoy if this Assignment had not been made.

The Assignors further agree to execute any and all patent applications, assignments, affidavits, and any other papers in connection therewith necessary to perfect such patent rights, and also agree, at the request of the Assignee, to testify in any legal proceedings, sign all lawful papers, make all lawful oaths, and generally do everything possible to aid said Assignee, its successors and assigns, to obtain, maintain and enforce patent protection for said invention in all countries.

Docket No. 50439-2

Page 2 of 2

The Assignors also hereby grant the law firm of EDWARDS & ANGELL, LLP, Dike, Bronstein, Roberts & Cushman, IP Group, the power to insert on this Assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

IN WITNESS WHEREOF, the Assignors have caused this Assignment to be executed.

Dated this 13 day of March, 2001.


Leon R. BARSTAD

Dated this 15 day of MARCH, 2001.


James E. RYCHWALSKI

Dated this 15 day of March, 2001.


Mark LEFEBVRE

Dated this ____ day of _____, ____.

Stephane MENARD

Dated this ____ day of _____, ____.

James L. MARTIN

Dated this ____ day of _____, ____.

Robert A. SCHETTY, III

Dated this ____ day of _____, ____.

Michael TOBEN

Attorney Docket No. 50439-2

Page 1 of 2

ASSIGNMENT

WHEREAS, I, Leon R. Barstad of Raynham, Massachusetts, I, James E. Rychwalski of Medway, Massachusetts, I, Mark Lefebvre of Hudson, New Hampshire, I, Stephane Menard of I, James L. Martin of Merrick, New York, I, Robert A. Schetty, III of Fort Salonga, New York and I, Michael P. Toben of Smithtown, New York, (hereinafter referred to as "Assignors"), have invented certain new and useful improvements in "ELECTROLYTIC COPPER PLATING SOLUTIONS", for which an application for United States Letters Patent was filed on June 28, 2000 and assigned U.S. Serial No. 09/605,442 which application claims priority of U.S. Serial No. 09/313,045, filed May 17, 1999, and

WHEREAS, Shipley Company, L.L.C., located at 455 Forest Street, Marlborough, Massachusetts 01752, (hereinafter referred to as the "Assignee"), is desirous of acquiring the entire right, title and interest in and to the same invention, and in and to the said application, and any Letters Patent that may issue thereon;

NOW, THEREFORE, TO ALL WHOM IT MAY CONCERN, be it known that for the above consideration, the Assignors have assigned and transferred, and do hereby assign and transfer to the Assignee, its successors and assigns, their entire right, title and interest for the United States in and to the said invention and in and to the said application and all patents which may be granted therefor, and all divisions, reissues, substitutions, continuations, in whole or in part, re-examinations, and extensions thereof, and all applications claiming priority therefrom; and the Assignors hereby authorize and request the Commissioner of Patents and Trademarks to issue all patents for said invention, or patents resulting therefrom, insofar as their interest is concerned, to the Assignee; to have and to hold for the sole and exclusive use and benefit of the Assignee, its successors and assigns, to the full end of the term or terms for which any and all of said Letters Patent for said invention may issue, to the same extent as the Assignors would hold and enjoy if this Assignment had not been made.

The Assignors also have assigned and transferred, and do hereby assign and transfer to the Assignee, its successors and assigns, their entire right, title and interest in and to the invention disclosed in said application, in all countries of the world foreign to the United States, including the right to file applications and obtain patents for said invention in its own name in said countries and including all rights of priority in said countries under the terms of any applicable international convention; to have and to hold for the sole and exclusive use and benefit of the Assignee, its successors and assigns, to the full end of the term or terms for which any and all of said Letters Patent for said invention may issue, to the same extent as the Assignors would hold and enjoy if this Assignment had not been made.

The Assignors further agree to execute any and all patent applications, assignments, affidavits, and any other papers in connection therewith necessary to perfect such patent rights, and also agree, at the request of the Assignee, to testify in any legal proceedings, sign all lawful papers, make all lawful oaths, and generally do everything possible to aid said Assignee, its successors and assigns, to obtain, maintain and enforce patent protection for said invention in all countries.

FEB-13-2004 FRI 02:27 PM EDWARDS & ANGELL

FAX NO. 617 439 4170

P. 34

Apr 27 01 04:33p

Rob Schetty

631-269-0132

P. 8

APR-27-2001 FRI 03:38 AM EDWARDS & ANGELL, LLP

FAX NO. 508 0363

P. 08

Docket No. 50439-2

Page 2 of 2

The Assignors also hereby grant the law firm of EDWARDS & ANGELL, LLP, Dike, Bronstein, Roberts & Cushman, IP Group, the power to insert on this Assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

IN WITNESS WHEREOF, the Assignors have caused this Assignment to be executed.

Dated this ____ day of _____, ____.

Leon R. BARSTAD

Dated this ____ day of _____, ____.

James E. RYCHWALSKI

Dated this ____ day of _____, ____.

Mark LEFEBVRE

Dated this ____ day of _____, ____.

Stephane MENARD

Dated this ____ day of _____, ____.

James L. MARTIN

Dated this 25 day of April, 2001


Robert A. SCHETTY, III

Dated this ____ day of _____, ____.

Michael TOBEN

Attorney Docket No. 50439-2

Page 1 of 2

ASSIGNMENT

WHEREAS, I, Leon R. Barstad of Raynham, Massachusetts, I, James E. Rychwalski of Medway, Massachusetts, I, Mark Lefebvre of Hudson, New Hampshire, I, Stephane Menard of , I, James L. Martin of Merrick, New York, I, Robert A. Schetty, III of Fort Salonga, New York and I, Michael P. Toben of Smithtown, New York, (hereinafter referred to as "Assignors"), have invented certain new and useful improvements in "ELECTROLYTIC COPPER PLATING SOLUTIONS", for which an application for United States Letters Patent was filed on June 28, 2000 and assigned U.S. Serial No. 09/605,442 which application claims priority of U.S. Serial No. 09/313,045, , filed May 17, 1999, and

WHEREAS, Shipley Company, L.L.C., located at 455 Forest Street, Marlborough, Massachusetts 01752, (hereinafter referred to as the "Assignee"), is desirous of acquiring the entire right, title and interest in and to the same invention, and in and to the said application, and any Letters Patent that may issue thereon;

NOW, THEREFORE, TO ALL WHOM IT MAY CONCERN, be it known that for the above consideration, the Assignors have assigned and transferred, and do hereby assign and transfer to the Assignee, its successors and assigns, their entire right, title and interest for the United States in and to the said invention and in and to the said application and all patents which may be granted therefor, and all divisions, reissues, substitutions, continuations, in whole or in part, re-examinations, and extensions thereof, and all applications claiming priority therefrom; and the Assignors hereby authorize and request the Commissioner of Patents and Trademarks to issue all patents for said invention, or patents resulting therefrom, insofar as their interest is concerned, to the Assignee; to have and to hold for the sole and exclusive use and benefit of the Assignee, its successors and assigns, to the full end of the term or terms for which any and all of said Letters Patent for said invention may issue, to the same extent as the Assignors would hold and enjoy if this Assignment had not been made.

The Assignors also have assigned and transferred, and do hereby assign and transfer to the Assignee, its successors and assigns, their entire right, title and interest in and to the invention disclosed in said application, in all countries of the world foreign to the United States, including the right to file applications and obtain patents for said invention in its own name in said countries and including all rights of priority in said countries under the terms of any applicable international convention; to have and to hold for the sole and exclusive use and benefit of the Assignee, its successors and assigns, to the full end of the term or terms for which any and all of said Letters Patent for said invention may issue, to the same extent as the Assignors would hold and enjoy if this Assignment had not been made.

The Assignors further agree to execute any and all patent applications, assignments, affidavits, and any other papers in connection therewith necessary to perfect such patent rights, and also agree, at the request of the Assignee, to testify in any legal proceedings, sign all lawful papers, make all lawful oaths, and generally do everything possible to aid said Assignee, its successors and assigns, to obtain, maintain and enforce patent protection for said invention in all countries.

23 Apr 01 16:41

S. MENARD - M.P.C.

(33) 437 280 425

p.7

Docket No. 50439-2

Page 2 of 2

The Assignors also hereby grant the law firm of EDWARDS & ANGELL, LLP, Dike, Bronstein, Roberts & Cushman, IP Group, the power to insert on this Assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

IN WITNESS WHEREOF, the Assignors have caused this Assignment to be executed.

Dated this ____ day of _____, ____.

Leon R. BARSTAD

Dated this ____ day of _____, ____.

James E. RYCHWALSKI

Dated this ____ day of _____, ____.

Dated this 23rd day of April, 2001.

Mark LEFEBVRE

Stephane MENARD

Dated this ____ day of _____, ____.

James L. MARTIN

Dated this ____ day of _____, ____.

Robert A. SCHETTY, III

Dated this ____ day of _____, ____.

Michael TOBEN

APR. 19. 2001 11:33PM 26 SHIPLEY RONAL ANGELL, LLP

FAX NO. 78 485 0363 NO. 346 P. 7

P. 07

Attorney Docket No. 50439-2
Page 1 of 2ASSIGNMENT

WHEREAS, I, Leon R. Barstad of Raynham, Massachusetts, I, James E. Rychwalski of Medway, Massachusetts, I, Mark Lefebvre of Hudson, New Hampshire, I, Stephane Menard of I, James L. Martin of Merrick, New York, I, Robert A. Schetty, III of Fort Salonga, New York and I, Michael P. Toben of Smithtown, New York, (hereinafter referred to as "Assignors"), have invented certain new and useful improvements in "ELECTROLYTIC COPPER PLATING SOLUTIONS", for which an application for United States Letters Patent was filed on June 28, 2000 and assigned U.S. Serial No. 09/605,442 which application claims priority of U.S. Serial No. 09/313,045, . filed May 17, 1999, and

WHEREAS, Shipley Company, L.L.C., located at 455 Forest Street, Marlborough, Massachusetts 01752, (hereinafter referred to as the "Assignee"), is desirous of acquiring the entire right, title and interest in and to the same invention, and in and to the said application, and any Letters Patent that may issue thereon;

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Docket No. 50439-2

Page 2 of 2

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IN WITNESS WHEREOF, the Assignors have caused this Assignment to be executed.

Dated this ____ day of _____.

Leon R. BARSTAD

Dated this ____ day of _____.

James E. RYCHWALSKI

Dated this ____ day of _____.

Mark LEFEBVRE

Dated this ____ day of _____.

Stephane MENARD

Dated this 19 day of APRIL, 2001.



James L. MARTIN

Dated this ____ day of _____.

Robert A. SCHETTY, III

Dated this 19 day of April, 2001.



Michael TOBEN